Current DFO-Sponsored Research Projects

This is a listing of current research projects that are supported in part by Dairy Farmers of Ontario. Other funding agencies such as the Ontario Ministry of Agriculture and Food, the Agricultural Adaptation Council, the Natural Sciences and Engineering Research Council, as well as industry partners and Universities also provide funds for many of these projects.

1. **Project #2012-01  
Identification of anti-diabetic milk components**  
Dr. John Cant, OAC, University of Guelph

   It is known that members of the population with elevated intake of dairy products are less at risk for symptoms of Type 2 diabetes. The purpose of this research is to identify the components in milk responsible for anti-diabetic effects. This will be done by measuring the effects of milk fractions in the diet on insulin sensitivity and insulin signaling. This research could lead to develop products based on milk targeted specifically as pre-diabetic therapy.

2. **Project #2012-02  
Oral vitamin D for childhood Multiple Sclerosis**  
Dr. Ann Yeh and Dr. Brenda Banwell, The Hospital for Sickkids, Toronto

   Vitamin D has been identified as a potential risk factor for multiple sclerosis (MS), particularly for children. More than two-thirds of children with MS are vitamin D insufficient. This study will monitor vitamin D compliance in MS children with high level vitamin D biology research, including how the environment modifies expression of human genes. This study could have influence on the future recommended daily Vitamin D level intake. Fluid milk products are an important source of vitamin D for children, in particular.

3. **Project #2012-03  
Novel omega-3 producing mircoorganisms to manipulate fatty acid contents of feed and foods**  
Dr. Mansel Griffiths, OAC, University of Guelph

   EPA and DHA are essential fatty acids known as omega-3 fatty acids that have been shown to have beneficial effects on human health. Primary sources of these fatty acids are fish and fish oils, with many food products being fortified with EPA and DHA sourced from fish. With declining world fish populations there is a need for new sources of these essential fatty acids.

   The goal of this research is to produce EPA/DHA in dairy products by transferring genes responsible for the production of EPA and DHA to food-grade microorganisms such as lactic acid bacteria that could be used as starter cultures in dairy products, silage adjuncts and/or feed supplements.

4. **Project #2012-04  
Development of a hybrid constructed wetland technology to treat milking centre wash waters**  
Dr. Christopher Kinsley, Alfred College, University of Guelph
The objective of this project is to develop new wetland technology coupled with the use of a phosphorus filter to treat milking centre wash water and/or barnyard runoff. Such a system will remove the high levels of phosphate in the wash waters from the phosphoric acid commonly used to clean milking equipment.

Pilot scale experiments are being conducted at Alfred College and full scale trials will be conducted at up to three operating dairy farms to evaluate and validate the systems.

5. **Project #2012-05**
   Developing markers for predicting embryonic health in cows
   Dr. Pavneesh Madan, OVC, University of Guelph

   Early embryonic mortality is considered to have a major economic impact on the dairy industry. Dr. Madan’s project with work with a relatively new non-invasive technique that will yield information about how embryos develop, determine if slow developing embryos can be rescued before death and help to validate if certain markers can be useful in assessing embryonic health. It is anticipated that this work will result in tools to better address issues related to early embryonic mortality.

6. **Project #2012-06**
   Investigating the impact of environment, management and pathogen burden on the late summer rise in bulk tank SCC
   Dr. David Kelton, OVC, University of Guelph

   Based on an analysis of SCC and milk quality data, a group of herds will be studied to evaluate differences in herd-specific determinants of udder health. The study will lead to the identification, evaluation and implementation of tools and strategies for dairy producers and their key milk quality advisors.

7. **Project #2013-01**
   Using knowledge of dairy cow behaviour to improve feeding management
   Dr. Trevor DeVries, Kemptville College, University of Guelph

   This study will investigate the effects of milking frequency, feeding frequency and the timing of feed delivery on the behaviour, production, health and efficiency of lactating dairy cows.

8. **Project #2013-02**
   Evaluation of risks of violative milk residues following topical administration of tetracycline for digital dermatitis in dairy cattle
   Dr. Ron Johnson, OVC, University of Guelph

   Tetracycline is commonly used to treat digital dermatitis by veterinarians, hoof trimmers and dairy producers. There are questions in regard to the safety of tetracycline as a treatment for digital dermatitis and the risk of residues.

   This study will evaluate the withdrawal time of milk when tetracycline is applied topically as a paste or in powered form (under bandage wrap) to treat digital dermatitis. A secondary objective will evaluate the clinical outcomes of the treatments.